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**1. Amendments to the Claims:**

A listing of the entire set of pending claims (including amendments to the claims, if any) is submitted herewith per 37 CFR 1.121. This listing of claims will replace all prior versions, and listings, of claims in the application.

**Listing of Claims:**

1. (Currently Amended) A method of analyzing successive data sets, where each of the individual data sets comprise data elements which assign data values to spatial positions, the method comprising the steps of:

calculating weighted mean data value for each of a plurality of establishing a local intensity variation  $I(x,t)$  from data values in successive data sets in corresponding spatial positions, and

localizing a region of interest on the basis of a time derivative of the local intensity variation from one or more of the successive data sets, wherein the local intensity variation in the region of interest is in conformity with a predetermined property.

2. (Previously Presented) A method of analyzing successive data sets as claimed in claim 1, wherein the step of establishing the local intensity variation is carried out for respective blocks of several data elements.

3. (Previously Presented) A method of analyzing successive data sets as claimed in claim 1, wherein the step of localizing includes localizing the region of interest on the basis of variations in the local intensity variation, notably on the basis of a time derivative  $\frac{\partial I(x,t)}{\partial t}$  of the local intensity variation.

4. (Previously Presented) A method of analyzing successive data sets as claimed in claim 3, wherein the step of localizing the region of interest includes localizing blocks

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of data elements in which the variations in the local intensity variation are larger than a predetermined ceiling value and/or by localizing blocks of data elements in which the variations in the local intensity variation are smaller than a predetermined bottom value.

5. (Previously Presented) A method of analyzing successive data sets as claimed in claim 1, further including a step of classifying data elements in one or more individual data sets, the classification of the data elements in the relevant data set (sets) indicating whether the relevant data element belongs to the region of interest or not.
6. (Previously Presented) A method of analyzing successive data sets as claimed in claim 5, wherein the step of classifying includes performing the classification is on the basis of a measure of similarity of the local intensity variation and a reference intensity variation in the region of interest.
7. (Previously Presented) A method of analyzing successive data sets as claimed in claim 5, wherein the step of classifying includes performing the classification is on the basis of a correlation of the local intensity variation with a mean intensity variation in the region of interest.
8. (Previously Presented) A method of analyzing successive data sets as claimed in claim 1, further including a step of masking parts with spatial gradients of data values in individual data sets in as far as the modulus of the spatial gradients in the relevant parts exceeds a predetermined acceptable gradient modulus.
9. (Previously Presented) A method of analyzing successive data sets as claimed in claim 1, wherein said successive data sets are made to correspond to one another.
10. (Currently Amended) A method of analyzing successive data sets, comprising the steps of:

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localizing a plurality of regions of interest on the basis of a time derivative of local intensity variation, wherein the local intensity variation in said regions of interest being in conformity with a predetermined property,

determining maximum intensity projections (MIPs) for the respective regions of interest, and

forming a feature image from differences between said maximum intensity projections.

11. (Previously Presented) A method of analyzing successive data sets as claimed in claim 10, wherein a center of the region of interest is determined in the feature image.
12. (Previously Presented) A method of analyzing successive data sets as claimed in claim 11, wherein the feature image is transformed to pole co-ordinates with said center as the origin, and  
a boundary of the region of interest is localized in said transformed feature image.
13. (Previously Presented) A method as claimed in claim 3, wherein a mask is derived from the time derivative of the local intensity variation for an individual data set, and  
the region of interest is segmented from the relevant data set by means of the mask.
14. (Previously Presented) A method as claimed in claim 13, wherein the mask is derived by applying a threshold filter to the time derivative of the local intensity variation for the relevant data set.
15. (Previously Presented) A method as claimed in claim 3, wherein a spatial distribution of the time derivative of the local intensity variation is reproduced for an individual data set.

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16. (Currently Amended) An analysis system for analyzing successive data sets, wherein individual data sets comprise data elements which assign data values to spatial positions, comprising:

means to establish a local intensity variation  $[I(x,t)]$  from data values in successive data sets in corresponding spatial positions, and

means for localizing, a region of interest from one or more of the successive data sets on the basis of a time derivative of the local intensity variation, wherein the local intensity variation in the region of interest is in conformity with a predetermined property.

17. (Currently Amended) A computer-readable medium for storing a set of computer instructions, which instructions are capable of implementing a method of analyzing successive data sets, including individual data sets with data elements that assign data values to spatial positions, comprising:

establishing a local intensity variation  $[I(x,t)]$  from data values in successive data sets in corresponding spatial positions, and

localizing, on the basis of a time derivative of the local intensity variation, a region of interest from one or more of the successive data sets, wherein the local intensity variation in the region of interest being in conformity with a predetermined property.

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